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Anfindsen

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[54] **PARAMETERIZED LOCK MANAGEMENT SYSTEM AND METHOD FOR CONDITIONAL CONFLICT SERIALIZABILITY OF TRANSACTIONS**

Raschid, et al., "A simulation-based study on the concurrent execution of rules in a database environment", Journal of Parallel and Distributed Computing, vol. 20, No. 1, Abstract Only, Jan. 1994.

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[57] **ABSTRACT**

[51] **Int. Cl.**⁶ G06F 12/00
[52] **U.S. Cl.** 707/8; 707/201; 395/726;
711/150; 711/168; 711/210
[58] **Field of Search** 707/8, 201; 395/726;
711/150, 151, 210, 163, 168, 152

A database management system (DBMS) is modified to provide improved concurrent usage of database objects, particularly when the system is executing long lived transactions. A subset of the transactions access database objects using parameterized read and parameterized write access modes. Each transaction using a parameterized write mode of access for a database object specifies a write access mode, and a write access mode parameter, where the parameter indicates a data reliability classification. Each transaction using a parameterized read mode of access for a database object specifies a read access mode, and a read access mode parameter, where the parameter indicates one or more reliability classifications that are acceptable to the transaction. Whenever a transaction requests access to a specified database object, the DBMS generates a corresponding lock request for the object. If the lock request is a parameterized lock request, a corresponding parameterized lock request is generated. A lock manager processes each lock request by checking to see if any outstanding, previously granted lock is unconditionally conflicting or conditionally conflicting with the requested lock. Two lock requests are unconditionally conflicting if their resource range overlaps and the access modes of the two requests are incompatible. Two requests are conditionally conflicting if analysis of their read/write parameters is necessary to determine whether a conflict exists. A conditional conflict is resolved by determining whether the write parameters for the write lock in question are a subset of the read parameters for the read lock in question.

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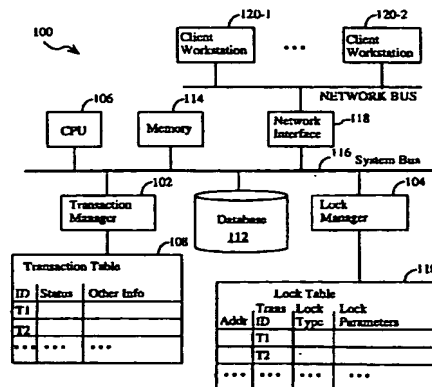
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9 Claims, 4 Drawing Sheets



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